1984

Chemical Weed Control in Small Grains and Forages : 1984

Cooperative Extension South Dakota State University

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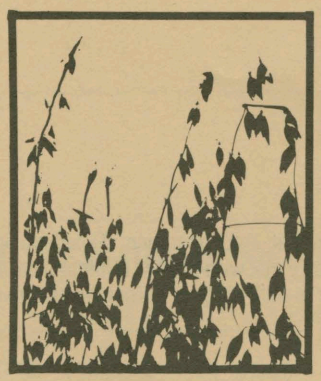

FS 525A

Chemical Weed Control in Small Grains and Forages: 1984

Cooperative Extension Service • South Dakota State University • U.S. Department of Agriculture

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Herbicides are a valuable supplement to and not a replacement for good rotations, clean seed, proper seedbed preparation, tillage, and crop competition.

Herbicide Suggestions

Information in this publication is based on research by the South Dakota Agricultural Experiment Station and other research or observations. Herbicides are included only after the chemical is registered by the Environmental Protection Agency (EPA) as to residue tolerances in crops used for food or feed.

This information provides a summary of herbicide uses and does not imply a guarantee. Tradenames are used for reader convenience and do not imply product endorsement. The label should be considered the final guide. Users are responsible for following label directions and precautions.

Weed Problems. Herbicide control is rated poor, fair, good, very good, or excellent for each weed problem in each crop.

Special Weed Problems. One section lists the best treatment for specific broadleaved weeds.

Herbicides. Most herbicides are listed by tradename except where the active ingredient is available in several products. The common name (in parentheses) follows the first listing of the tradename.

Rates. Rates for each treatment and each formulation are stated as the amount of product per acre. The amount of active ingredient or acid equivalent (act) per acre is stated for each formulation in parentheses.

Time To Apply. The best time to apply most treatments is based on crop and/or weed growth stage. Some herbicides are applied preemergence (after planting but before weeds or crop emerge). Some must be incorporated. Others are applied preplant incorporated (before planting).

FOLLOW THE LABEL

Federal regulations make it unlawful for any person to use an herbicide in a manner inconsistent with its labeling. This includes the kind of crop and weed; rate, carrier and other application directions; storage, disposal, and protective clothing; or other precautions stated.

Abbreviations Used

pt	=	pint
qt	=	quart
gal	=	gallon
lb	=	pound
act	=	actual or acid equivalent
lb/gal	=	pound per gallon active
df	=	dry flowable (spray)
gran	=	granule
wsp	=	water soluble powder

OATS (not underseeded to legumes)

MCPA AMINE or MCPA ESTER

½-1 pt MCPA amine-4 lb/gal or ½-⅔ pt MCPA ester-4 lb/gal (¼-½ or ¼-⅓ act)

SOME BROADLEAVES

Apply at 3- to 4-leaf stage of crop. At other growth stages, crop is more tolerant to the treatment than to other treatments. Crop least tolerant at boot to heading. Weeds must be small. MCPA is equal to 2,4-D on wild mustard, lambsquarters, and Canada thistle. MCPA is less effective than 2,4-D on larger broadleaved weeds. Poor control of kochia and wild buckwheat. Most situations require ⅔ to 1 pt/A. Do not graze dairy or slaughter animals on treated areas for 2 weeks after treatment.

2,4-D AMINE

½-⅔ pt 2,4-D amine-4 lb/gal (¼-⅓ act)

BROADLEAVES

Apply at 3- to 4-leaf stage of crop. Do not apply at boot to heading. Less crop tolerance than to MCPA. Oat varieties vary in tolerance to 2,4-D. Very good control of several annual broadleaves. Weak on wild buckwheat and kochia. Use higher rate for larger weeds or for perennials, but risk of crop injury increases. Do not graze dairy or slaughter animals on treated areas for 2 weeks after application.

Harvest aid application of 1 lb/A acid equiv may be made after the dough stage. Straw should not be used for feed.

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BANVEL (DICAMBA)

¼ pt Banvel-4 lb/gal (1/8 act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Apply at 2- through 4-leaf stage of crop. Do not apply after the 4-leaf stage. Marginal crop tolerance. Excellent wild buckwheat and good kochia control. Does not control wild mustard. Usually used in a tank-mix with MCPA. Minimum carrier is 5 gpa for ground and 3 gpa for air. Do not graze or harvest forage for dairy feed prior to milk stage of kernel development.

BANVEL + MCPA AMINE (DICAMBA + MCPA)

1/8-1/4 pt Banvel-4 lb/gal + 1/2-3/4 pt MCPA-4 lb/gal (1/16-1/8 + 1/4-3/8 act)

WILD BUCKWHEAT, SEVERAL ANNUAL BROADLEAVES

Tank-mix. Apply at 3- to 4-leaf stage of crop. Do not apply after the 4-leaf stage. Marginal crop tolerance. Use high rate of dicamba for best kochia control. Lower rates preferred for small weeds and better crop tolerance. Application directions and restrictions as for dicamba alone.

BUCTRIL or ME-4 BROMINAL (BROMOXYNIL)

1½-2 pt Buctril-2 lb/gal or ½-1 pt Brominal-4 lb/gal (¼-½ act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Apply at 2-leaf to early boot stage of crop. Fair crop tolerance. Risk of leaf burn under hot, humid conditions. Use lower rates for maximum crop safety. Rate of 1½ pt Buctril or ¾ pt Brominal suggested for most situations. Primarily where wild buckwheat is the major problem. Weeds should not be past the 3- to 4-leaf stage for best results. Not effective on perennials. Most frequently used with MCPA for broadspectrum weed control. Contact action. Good coverage required. Minimum carrier is 10 gpa for ground and 2 gpa for Brominal or 5 gpa for Buctril with aerial application. Do not graze treated areas for 30 days following application.

BUCTRIL or ME4 BROMINAL + MCPA (BROMOXYNIL + MCPA)
BRONATE or 3+3 BROMINAL

1-2 pt Buctril-2 lb/gal or ½-¾ pt ME4 Brominal-4 lb/gal + ½-1 pt MCPA-4 lb/gal (1/4-1/2 + 1/4-3/8 act)

1-2 pt Bronate or ⅔-1 pt 3+3 Brominal

WILD BUCKWHEAT, KOCHIA, SEVERAL ANNUAL BROADLEAVES

Tank-mix or commercial premix. Bronate contains 2 lb/gal acid equiv each of bromoxynil and MCPA ester and 3+3 Brominal contains 3 lb/gal acid equiv of each. Apply at the 3- to 4-leaf to early boot stage. Lower rates preferred for best crop safety. Very important to treat weeds when small. Excellent wild buckwheat and good kochia control. Very good control of several other annual broadleaves. Not for perennials. Low rate is for small weeds. Crop safety has been adequate in most tests. Leaf burn noted, especially under hot, humid conditions. Do not apply just before heavy frost. Good coverage required. Minimum carrier is 10 gpa for ground and 2 gpa for Brominal or 5 gpa for Buctril applied by air. Do not graze treated areas for 30 days after application.

TORDON 22K + MCPA AMINE (PICLORAM + MCPA)

1 fl oz Tordon 22K-2 lb/gal + ½-¾ pt MCPA amine-4 lb/gal (1/64 + 1/4-3/8 act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Tank-mix. Apply at 3- to 5-leaf stage of crop when weeds are small. Excellent on wild buckwheat. Also controls some annual broadleaves such as mustard and lambsquarters. Poor kochia control. Used primarily where wild buckwheat is the major problem. Good crop tolerance. Do not plant susceptible broadleaved crops such as alfalfa, sunflowers, or soybeans the following year. Minimum carrier is 5 gpa for ground and 1 gpa for air. Consult label for all application directions and restrictions. Special Local Needs state registration. Restricted Use pesticide. Crop use restrictions as for MCPA alone.

WHEAT, RYE, BARLEY
(not underseeded to legumes)

MCPA AMINE or MCPA ESTER

½-1 pt MCPA amine-4 lb/gal or ½-1 pt MCPA ester-4 lb/gal (¼-½ act)

SOME BROADLEAVES

Selective, translocated herbicides for several annual broadleaves. Appear to be as effective as 2,4-D on wild mustard, lambsquarters and Canada thistle. Weeds must be small; early spraying is important. Less effective than 2,4-D on larger weeds. Kochia and wild buckwheat control usually unsatisfactory. Excellent crop tolerance. Less risk of injury than for other herbicides if applied at sensitive crop growth stages. Avoid spraying at boot to heading. Most situations require ⅔ to 1 pt/A. Ester or amine formulations usually used at the same rate. Ester forms have appeared slightly more effective on more species. Apply by air or ground. Do not graze dairy or slaughter animals on treated areas for 2 weeks after treatment.

WINTER WHEAT, RYE. Apply in the spring after tillering but before early boot. MCPA is not widely used on winter grains because other treatments frequently give better control of weed problems.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply from the 5-leaf to early boot stage. Used because of excellent crop tolerance at a wide range of stages. Frequently used in combination treatments.

2,4-D AMINE or 2,4-D ESTER

½-1 pt 2,4-D amine-4 lb/gal or ½-1 pt 2,4-D ester-4 lb/gal or ⅓-⅔ pt 2,4-D ester-6 lb/gal (¼-½ act)

BROADLEAVES

Selective, translocated herbicide for several annual and perennial broadleaved weeds. Best choice for field bindweed or Canada thistle in many situations. Very good control of several annual broadleaves but less effective for kochia or wild buckwheat. Good crop tolerance at proper growth stage. Avoid treating at boot to heading. Better crop tolerance with amine. Ester usually used at slightly lower rate than amine. Rates of ⅓ lb/A acid equiv ester or ½ lb/A acid equiv amine have been satisfactory for most general broadleaved problems. Rate of ¼ lb/A acid equiv will control small susceptible weeds such as wild mustard. Use maximum rate for perennials. Some labels allow rates to ¾ lb/A acid equiv for improved perennial control if some crop injury can be tolerated. Apply by air or ground. Do not graze dairy or slaughter animals on treated areas for 2 weeks after application. NOTE: 2,4-D showing 3.8 lb/gal is the same as 4 lb/gal; and 5.7 lb/gal is the same as 6 lb/gal acid equiv. The change reflects new laboratory method; products have not changed.

WINTER WHEAT, RYE. Apply in the spring when crop is fully tillered until early boot. Do not apply in the fall.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply from the 5-leaf to early boot stage after crop has tillered. Earlier treatment may reduce number of tillers.

BANVEL (DICAMBA)

¼ pt Banvel-4 lb/gal (1/8 act)

WILD BUCKWHEAT, KOCHIA

Selective, translocated herbicide for certain broadleaved weeds. Primarily for use where kochia or wild buckwheat is the major problem. Does not control wild mustard or pennycress. Seldom used alone. Usually used in combination with MCPA or 2,4-D. Crop growth stage very critical. Crop tolerance fair to marginal. Late applications may cause serious injury. Minimum carrier is 5 gpa for ground and 3 gpa for air. Do not graze or harvest forage for dairy feed prior to milk stage or kernel development.

WINTER WHEAT. Apply in the spring before jointing stage of crop. Primarily for severe kochia. Wild buckwheat and other weeds frequently not emerged at proper time to spray. Not for rye.

HARD RED SPRING WHEAT, DURUM. Apply at the 2- through 4-leaf crop stage. Some durum appears to be slightly less tolerant than hard red spring.

BARLEY. Not recommended. Label suggests 3/16 pt/A at the 2- to 3-leaf stage. Applications in barley frequently result in severe crop injury if applied after the 3-leaf stage.

BANVEL + MCPA or 2,4-D (DICAMBA + MCPA or 2,4-D) MONDAK

1/8-1/4 pt Banvel-4 lb/gal + ½-¾ pt MCPA or 2,4-D-4 lb/gal (1/16-1/8 + 1/4-3/8 act)
0.8 pt MonDak-1¼ + 2½ lb/gal(1/8 + 1/4 act)

WILD BUCKWHEAT, KOCHIA, SEVERAL ANNUAL BROADLEAVES

Tank-mix or use MonDak commercial premix containing 1¼ lb dicamba + 2½ lb MCPA amine acid equiv per gallon. Excellent broadspectrum broadleaved weed control, including wild buckwheat and kochia. MCPA or 2,4-D in the combination improves control of several other broadleaved weeds. Time of application usually too early for maximum perennial control. Usually preferred to Banvel alone. Crop growth stage critical. Do not apply late. Lower rates improve crop tolerance and may provide adequate control of small weeds under favorable growing conditions. Rate of 1/6 pt Banvel + ½ pt MCPA or 2,4-D-4 lb/gal suggested for most situations. Use higher Banvel rates for best kochia control. MCPA in the combination preferred for best crop safety. Amine form of MCPA or 2.4-D suggested. Application directions and restrictions as for dicamba alone.

WINTER WHEAT. Apply in the spring before jointing stage of crop. Primarily for severe kochia. Not for rye.

HARD RED SPRING WHEAT, DURUM. Apply at the 4-leaf crop stage. Some durum appears slightly less tolerant than hard red spring.

BARLEY. Not recommended. Label suggests 1/8 to 3/16 pt Banvel plus ½ pt MCPA per acre at the 2- to 3-leaf crop stage. Applications in barley frequently result in excessive injury.

BUCTRIL or ME4 BROMINAL (BROMOXYNIL)

1½-2 pt Buctril-2 lb/gal or ½-1 pt ME4 Brominal-4 lb/gal (¼-½ act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Contact herbicide for several annual broadleaved weeds. Excellent wild buckwheat control. Usually used in combination with MCPA or 2,4-D to improve control of several broadleaves. Not effective on perennials. Very good crop tolerance at a wide range of growth stages. Weeds must be small. Rate of 1½ pt Buctril or ¾ pt ME4 Brominal per acre suggested for most situations. Higher rate for larger weeds. Minimum carrier is 10 gpa for ground and 2 gpa for Brominal or 5 gpa for Buctril with aerial application. Do not graze treated areas for 30 days following application.

WINTER WHEAT, RYE. Usually applied in spring before crop has reached boot stage. May be applied in fall for winter annuals.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply at 2-leaf to early boot stage of crop.

BUCTRIL or ME4 BROMINAL + MCPA or 2,4-D (BROMOXYNIL + MCPA or 2,4-D) BRONATE or 3+3 BROMINAL

1-2 pt Buctril-2 lb/gal or ½-¾ pt ME4 Brominal-4 lb/gal + ½-1 pt MCPA or 2,4-D-4 lb/gal ***(¼-½ + ¼-½ act)***
1-2 pt Bronate or ⅔-1 pt 3+3 Brominal

WILD BUCKWHEAT, SEVERAL ANNUAL BROADLEAVES

Tank-mix or commercial premix. Bronate contains 2 lb/gal acid equiv each of bromoxynil and MCPA ester and 3+3 Brominal contains 3 lb/gal acid equiv of each. Broadspectrum annual broadleaved control. Excellent wild buckwheat and good kochia control. Not for perennials. Weeds should be in the 1- to 4-leaf stage. Control of large weeds is less satisfactory. Very good crop tolerance at a wide range of growth stages. Rate of ¼ (bromoxynil) + ¼ (MCPA or 2,4-D) lb/A acid equiv has been satisfactory for small weeds under favorable growing conditions. Use 3/8 lb/A acid equiv of each for larger weeds or less favorable conditions. Use high rates of MCPA or 2,4-D for best perennial weed control. An additional ¼ lb/A acid equiv MCPA may be added to the rates listed in the combination. MCPA preferred for the tank-mix for best crop safety or for spraying at early crop leaf stages. Ester formulations suggested. Avoid treating prior to heavy frost. Good coverage important. Minimum carrier is 10 gpa for ground and 2 gpa or Brominal or 5 gpa for Bronate applied by air. Do not graze treated areas for 30 days after application.

WINTER WHEAT, RYE. Apply in spring after tillering to early boot crop stage.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply at the 3- to 4-leaf to early boot crop stage.

TORDON 22K + MCPA or 2,4-D (PICLORAM + MCPA or 2,4-D)

1-1½ fl oz Tordon 22K-2 lb/gal + ½-¾ pt MCPA or 2,4-D-4 lb/gal (1/64-1/48 + 1/4-3/8 act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Tank-mix. Selective, translocated herbicide for annual broadleaves. Used primarily where wild buckwheat is the major problem. MCPA or 2,4-D improves control of other broadleaves. Poor kochia control. Acceptable crop tolerance. Avoid late spraying. Low rates are for small weeds under favorable conditions. MCPA amine or ester or 2,4-D amine in the tank-mix appears to offer better crop tolerance than with 2,4-D ester. Use proportionately less 2,4-D for 6 lb/gal product. Do not plant susceptible broadleaved crops such as alfalfa, sunflowers, or soybeans the following year. Minimum carrier is 5 gpa for ground or 1 gpa for air. Consult label for all application directions and precautions. Special Label Needs registration. Restricted Use pesticide.

WINTER WHEAT. Apply in spring after tillering to early boot. Not for rye.

HARD RED SPRING WHEAT, BARLEY. Apply at the 3- to 5-leaf crop stage. Not for durum.

STAMPEDE + MCPA ESTER (PROPANIL + MCPA)

3 pt Stampede-3 lb/gal + ½ pt MCPA ester-4 lb/gal (1.1 + ¼ act)

FOXTAIL, SOME ANNUAL BROADLEAVES

Tank-mix. Foxtail control has been variable but satisfactory under good growing conditions. Results are poor when plants are under drought stress. Do not apply beyond recommended weed stage. Provides good control of pigweed, wild buckwheat, and lambsquarters; fair on kochia. Considerable crop yellowing and leaf burn; however crop usually recovers if conditions are favorable. Durum and barley less tolerant than hard red spring wheat. Do not use in fields treated with organophosphate insecticide. Minimum carrier is 10 gpa for ground or 5 gpa for air.

HARD RED SPRING WHEAT. Apply 3 pt Stampede + ½ pt MCPA ester per acre when foxtail is at the 2- to 3-leaf stage. Wheat is usually at the 3- to 5-leaf stage. Stampede alone at 4 pt/A may be used for foxtail at the 3- to 4-leaf stage. Do not apply after foxtail is beyond the 4-leaf stage or after crop is beyond the 5-leaf stage.

DURUM, BARLEY. Apply 3 pt Stampede + ½ pt MCPA ester when foxtail is at the 2- to 3-leaf stage. Durum and barley should not be treated after the 4-leaf crop stage.

TREFLAN (TRIFLURALIN)

1-1½ pt Treflan-4 lb/gal or 10-15 lb Treflan-5% gran (½-¾ act)

FOXTAIL

Spring Application After Planting, Shallow Incorporated. Liquid formulation. Incorporate 1 to 1½ inches deep with two flextine or spike-tooth harrowings. Immediate incorporation preferred but may be delayed up to 8 hours if soil surface is dry and there is little wind. Excessive residue should be incorporated before planting. Seed must be planted 2 to 3 inches deep so it is below the treated soil layer. Use the low rate on light, low organic matter soil and the high rate on heavy, clay soil. The 1¼ pt/A rate has been satisfactory in most SDSU tests. Foxtail control has been very consistent, except with extremely dry topsoil. Does not control wild oats. Very good crop tolerance if seed planted below treated soil. Better crop tolerance than fall incorporated application. Minimum carrier is 5 gpa. Do not plant oats or sorghum the following year. Preferred application method for most situations.

Fall Applied Preplant Incorporated. Granules preferred. Apply granules after September 1; liquid after October 15. Crop residues should be worked to a manageable level before application. Granules may be applied into standing stubble. Incorporate one time within 24 hours. The second incorporation should be in the spring before planting. A chisel (three rows of narrow spaced sweeps) set 4 to 5 inches deep, tandem disk set 3 to 4 inches deep or field cultivator may be used. A disk or field cultivator should be used for the second pass. Very consistent foxtail control. Use low rate for light, sandy and medium textured soil, the high rate for heavy, clay soil. Crop tolerance may be adequate; however some stand reduction may be noted in certain conditions. Spring post-plant application preferred for most situations. Weed control will be more consistent under dry conditions. Application directions and precautions same as for spring application.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply in spring after planting and incorporate shallowly or in the fall preplant incorporated. Not for winter wheat or rye.

FAR-GO (TRIALLATE)

1-1¼ qt Far-go-4 lb/gal or 12½-15 lb Far-go-10% gran (1-1¼ or 1¼-1½ act)

WILD OATS

Spring Application. Spray formulations preferred. Apply after planting and incorporate immediately into the top 2 inches of soil with two harrowings. Application and incorporation may be done before planting for barley. Excessive plant residue should be worked into the soil before application. Barley is more tolerant than wheat. Use low rate on wheat. Crop seed must be planted 2 to 3 inches deep so seed is below layer of treated soil. Wheat seed in treated soil layer will be damaged. Not suggested for disk-planted (endgate seeder) wheat. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. Do not graze livestock on treated areas.

Fall Application. Granules preferred. Results have been consistent. Rates of granules listed are for fall treatment. Granules should be applied within 3 weeks of soil freeze-up. Stubble fields should be worked with a field cultivator or disk before application. Incorporate granules into top 2 inches of soil within 48 hours using a field cultivator or other suitable equipment. Spring seedbed tillage must be shallow.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply in spring or fall as shown above.

TREFLAN + FAR-GO (TRIFLURALIN + TRIALLATE)

1-1½ pt Treflan-4 lb/gal + 1-1¼ qt Far-go-4 lb/gal (½-¾ + 1-1¼ act)

FOXTAIL, WILD OATS

Tank-mix. Spring applications only. Apply after planting and incorporate as for Far-go alone. Adjust rates for soil type. Consistent control. Rates of 1 pt/A Treflan + 1 qt/A Far-go per acre have been satisfactory in most SDSU tests. Maximum Far-go rate for barley is 1 qt/A. Refer to application directions and precautions for each product used alone. Do not mix granules or liquid for fall application. Unless the wild oat problem is very spotty, consider applying Far-go granules in the fall and Treflan liquid in the spring after planting if the spring applied tank-mix is not used.

HARD RED SPRING WHEAT, DURUM, BARLEY. Apply in spring as shown above. Not for winter wheat or rye.

HOELON (DICLOFOP)

2-3⅓ pt Hoelon-3 lb/gal (¾-1¼ act)

WILD OATS, FOXTAIL

For postemergence wild oat and foxtail control. Weeds should be in the 1- to 3-leaf stage for best results. Control has been consistent when applied at the proper weed stage. Do not treat weeds larger than specified for the rate and crop. Use lowest rate only for weeds in the 1- to 2-leaf stage and when growing conditions are favorable. The 2⅔ pt/A rate is suggested for most other stiuations. Adequate crop tolerance. Wheat is more tolerant than barley. Some crop leaf discoloration occurs under stress conditions. Do not tank-mix with herbicides other than those labeled, as weed control may be reduced. Minimum carrier is 10 gpa for ground and 5 gpa for air. Do not graze or harvest forage from treated fields. Restricted Use pesticide.

WINTER WHEAT. Apply in spring. Same as for spring wheat. Not for rye.

HARD RED SPRING WHEAT, DURUM. Apply when foxtail or wild oats is in the 1- to 4-leaf stage. Use 2 to 2⅔ pt/A when weeds have 1 to 3 leaves. Rates of 2⅔ to 3⅓ pt/A may be used when weeds have 3 to 4 leaves. Do not treat past 4-leaf stage of weeds.

BARLEY. Apply when foxtail and wild oats are in the 1- to 3-leaf stage. Use 2 to 2⅔ pt/A. Do not treat past the 3-leaf stage of weeds. Do not treat barley under cold or prolonged wet conditions.

HOELON + BUCTRIL or ME4 BROMINAL (DICLOFOP + BROMOXYNIL)

2-3½ pt Hoelon-3 lb/gal + 1½-2 pt Buctril-2 lb/gal or ¾-1 pt ME4 Brominal-4 lb/gal (3/4-1 1/4 + 3/8-1/2 act)

WILD OATS, FOXTAIL, SEVERAL ANNUAL BROADLEAVES

Tank-mix. Provides good to very good control of wild oats, foxtail, and emerged annual broadleaves including wild buckwheat and kochia. Not for perennials. Grasses must be in proper growth stage for Hoelon and broadleaves must be small. Minimum carrier is 10 gpa for ground or 5 gpa for air. Follow rates, weed stages, and precautions as for Hoelon alone. Do not mix with MCPA or 2,4-D.

WINTER WHEAT, HARD RED SPRING WHEAT, DURUM. Refer to Hoelon alone. Not for rye.

BARLEY. Refer to Hoelon alone. Do not exceed 2⅔ pt/A Hoelon or use under cold, prolonged wet conditions.

CARBYNE (BARBAN)

1-1½ pt Carbyne-2 lb/gal (1/4-3/8 act)

WILD OATS

For postemergence wild oat control. Apply when wild oats is in 2-leaf stage. Wild oat control is good if weed emergence is uniform. Activity is greatest at low temperatures. Use high rate for heavy populations and when temperatures are high and when soil moisture is inadequate. The addition of liquid nitrogen fertilizer as part of the carrier will improve wild oat control on soil low in nitrogen or when wild oats are under stress conditions. Add 1 gal liquid nitrogen per acre. Use agitation when mixing. Crop tolerance is improved if applied when daytime temperature will exceed 60°F and not fall below 40°F for several hours each of the first 3 days. Light frost prior to application should not increase crop injury if temperature requirements are met following application. Some durum varieties reported to be less tolerant; however, Leeds and Wells appear to be as tolerant as hard red spring wheat. Use 5 to 10 gpa carrier and 45 psi pressure and have boom on ground equipment rotated forward so spray hits weeds at a 45° angle. Use 3 to 5 gpa for aerial application. Treated fields should not be grazed.

Rescue alternatives include a single application of 2 pt/A if wild oats is in the 2½- to 3½-leaf stage or a split application using a second 1 pt/A applied 7 to 14 days after initial treatment. These are strictly rescue programs and should be considered only when crop tolerance is of little concern.

WINTER WHEAT. Not suggested for spring application on overwintered wild oats. Not for rye.

HARD RED SPRING WHEAT, DURUM, BARLEY. Higher rate suggested for semi-dwarf wheat varieties. Do not use rescue treatments on durum.

CARBYNE + ME4 BROMINAL or BUCTRIL (BARBAN +BROMOXYNIL)
CARBYNE + AVENGE (BARBAN + DIFENZOQUAT)
CARBYNE +GLEAN (BARBAN + CHLORSULFURON)

1½ pt Carbyne-2 lb/gal + ½-1 pt ME4 Brominal-4 lb/gal or 1-2 pt Buctril-2 lb/gal (3/8 + 1/4-1/2 act)
1 pt Carbyne-2 lb/gal + 1-2 pt Avenge-2 lb/gal (1/4 + 1/4-1/2 act)
1-1½ pt Carbyne-2 lb/gal + 1/6-1/2 oz Glean-75% df (1/4-3/8 + .007-.02 act)

WILD OATS, SEVERAL ANNUAL BROADLEAVES

Tank-mixes. Provides fair to good control of wild oats and controls several annual broadleaved weeds. Application must be timed for wild oats in the 2-leaf stage. Bromoxynil combinations primarily for small, annual broadleaves. Avenge combination controls only wild oats. Intended to provide control if wild oats have some variation in growth stage (1½- to 5-leaf) and to maintain crop safety with reduced rate of each herbicide. Glean combination provides control of small annual weeds and residual control where fallow, wheat, or barley will follow the next season. Apply as for Carbyne alone. Use the higher rates of carrier for bromoxynil combinations.

HARD RED SPRING WHEAT, DURUM. Combinations of Carbyne with bromoxynil, Avenge, or Glean. Refer to Avenge section for variety restrictions. Refer to Glean section for rate and crop rotation guidelines.

BARLEY. Combinations of Carbyne with bromoxynil or Avenge.

AVENGE (DIFENZOQUAT)

2½-4 pt Avenge-2 lb/gal (⅔-1 act)

WILD OATS

For postemergence wild oat control. The 3 pt/A is suggested for most light to moderate infestations in wheat. Apply when wild oats is in the 3- to 5-leaf stage. Wild oat is most susceptible at the 5-leaf stage. High rate is for early application and for high weed densities over 25 plants/square foot. Best results under good growing conditions. Do not apply when plants are wet or under drought stress. Minimum carrier is 5 gpa for ground and 3 gpa for air. Add surfactant for carrier volumes over 10 gpa. Do not graze or harvest forage from treated fields.

WINTER WHEAT. Limited data or experience because wild oat in winter wheat is not a widespread problem. Reports indicate adequate crop tolerance. Not for rye.

HARD RED SPRING WHEAT, DURUM, BARLEY. Use only on Butte, Olaf, Era, Kitt, Fortuna, Solar, Coteau, Walera, Probrand 711, Marshall, Wheaton, Probrand 715, Oslo, Pioneer 2369, and Pondera hard red spring wheat varieties. Do not treat unlabeled varieties as injury can be substantial. Labeled varieties appear to have adequate tolerance under favorable growing conditions. Durum, except Vic, Edmore, Lakota, and Wacona, may be treated. Barley is more tolerant than spring wheat.

AVENGE + MCPA or 2,4-D (DIFENZOQUAT + MCPA or 2,4-D)
AVENGE + ME4 BROMINAL or BUCTRIL (DIFENZOQUAT + BROMOXYNIL)
AVENGE + 3+3 BROMINAL OR BRONATE (DIFENZOQUAT + BROMOXYNIL + MCPA)
AVENGE + GLEAN (DIFENZOQUAT + CHLORSULFURON)

2½-4 pt Avenge-2 lb/gal + ½-2 pt MCPA-4 lb/gal or ½-1½ pt 2,4-D-4 lb/gal (2/3-1 + 1/4-1 or 1/4-3/4 act)
2½-4 pt Avenge-2 lb/gal + 1½-2 pt Buctril-2 lb/gal or ¾-1 pt ME4 Brominal-4 lb/gal (2/3-1 + 3/8-1/2 act)
2½-4 pt Avenge-2 lb/gal + 1-2 pt Bronate or ⅔-1⅓ pt 3+3 Brominal (2/3-1 + 1/4-1/2 act)
2½-4 pt Avenge-2 lb/gal + 1/6-1/2 oz Glean-75% df (2/3-1 + .007-.02 act)

WILD OATS, SEVERAL BROADLEAVES

Tank-mixes. Provides good to very good control of wild oats and several broadleaved weeds. Combination with 2,4-D preferred for perennials. Combination with Glean provides control of small annual weeds and residual control where fallow, wheat, or barley will follow the next season. In most situations, Glean may provide better control if applied earlier when weeds are smaller. Bromoxynil combinations primarily for small, annual broadleaves. Follow crop use directions and variety restrictions as for Avenge alone. Some combinations have been only in limited SDSU tests, especially at higher rates. Follow rate suggestions listed for MCPA, 2,4-D, bromoxynil, or Glean alone as some rates listed in the above combinations are higher than recommended for safe use. Use minimum of 5 gpa for ground or aerial application of MCPA or 2,4-D tank-mix. Use minimum of 10 gpa for ground or 5 gpa for aerial application of bromoxynil tank-mix. Use minimum of 5 gpa for ground or 3 gpa for aerial application of Glean tank-mix.

GLEAN (CHLORSULFURON)

1/6-1/2 oz Glean-75% df (.007-.02 lb act)

SEVERAL ANNUAL GRASSES AND BROADLEAVES

Glean will control several annual weeds in wheat and barley and has residual properties that provide extended weed control after harvest or in fallow. It is extremely "active" and is used at very low rates. Wild mustard, pennycress, pigweed, and lambsquarters are most susceptible and can be controlled with 1/6 to 1/3 oz/A product. Russian thistle, wild buckwheat, kochia, and foxtail are suppressed and require 1/3 to 1/2 oz/A product. Early postemergence gives best control. Wild oat and downy brome are not controlled. Weed control has been excellent to very good in most situations. Crop tolerance appears adequate. Barley is less tolerant than wheat. Crop injury can result from treatment when crop is under stress. Heavy rainfall soon after application may cause temporary discoloration. Differential variety selectivity has not been established. Soil pH is also used to determine rate. Do not apply Glean on soils with pH over 7.5. Do not exceed 1/3 oz/A product on soil with pH 6.5 to 7.5. Avoid swath overlap or drift. Use extra care to clean tank, line, and boom as small quantities can injure susceptible crops. Flush hoses and boom for 10 minutes, then add ½ gal chlorine bleach per 100 gal of water. Flush equipment, operate sprayer system for 15 minutes. Repeat the flush operation and drain. Remove screens and nozzles. Do not use bleach with ammonia. Minimum carrier is 3 gpa for ground or 1 gpa for air.

WINTER WHEAT, HARD RED SPRING WHEAT, DURUM, BARLEY. *Postemergence To Crop.* Apply 1/6 to 1/2 oz/A when weeds are less than 2 inches tall or 2 inches in diameter. Apply after the crop is in the 2- to 3-leaf stage, but before boot stage. A surfactant such as "X-77" at 1 qt/100 gal of solution is suggested, especially for foxtail, kochia, and wild buckwheat. Has been the best program for weed control in the crop. The high rate usually gives some after harvest control in the stubble.

WINTER WHEAT, HARD RED SPRING WHEAT, DURUM. *Preemergence.* Apply 1/6 to 1/3 oz/A after planting but before crop emerges. Rainfall within 2 weeks is required to activate Glean.

HARD RED SPRING WHEAT, DURUM. *Fall Application.* Apply 1/3 oz/A in the fall in stubble or on tilled ground. Do not till in the fall after application.

WINTER WHEAT, HARD RED SPRING WHEAT, DURUM. *Split Treatment.* For soils with less than 6.5 pH. Plant crop at least 1 inch deep. Apply ¼ oz/A or less each time, preemergence, postemergence, or late postemergence. Allow 30 days between applications. Do not apply after boot stage. Not widely used.

FALLOW. Refer to No-Till section.

Soil carryover increases under high soil pH (over 7.0), low rainfall (under 20 inches), cool soil temperature (under 40°F), and with high rates. Small quantities of Glean remaining in the soil can injure crops other than wheat or barley for 2 years or longer at pH 6.5 or lower, and up to 3 years or longer in soil pH 6.6 to 7.5. On soils over 7.0 pH, a 4-year interval may be required. The season before planting crops other than wheat or barley, a test strip of the crop to be planted must be grown to maturity.

Wheat or barley may be planted into treated areas according to the following intervals (given in months):

Soil pH	Under 6.5	Under 6.5	6.6- 7.5	Over 7.5
Rate Used	**1/6-1/3 oz**	**1/2 oz**	**1/6-1/3 oz**	DO
Wheat	0	4	0	NOT
Barley	10	10	16	USE

FLAX

MCPA AMINE or MCPA ESTER

½ pt MCPA amine-4 lb/gal or ½ pt MCPA ester-4 lb/gal (¼ or ¼ act)

FEW BROADLEAVES

Apply when flax is 2 to 6 inches tall but before buds form. Treat before weeds are 4 inches tall. Fair to good control of mustard and lambsquarters. Poor on kochia or wild buckwheat. Fair to good crop tolerance. Better crop tolerance and improved weed control when sprayed early. Usually applied in combination with Dowpon. Avoid treating during drought stress. Flax may be underseeded to alfalfa. Not labeled for preharvest application.

DOWPON (DALAPON)

1 lb Dowpon-74% wsp (¾ act)

FOXTAIL

Apply when flax is 1 to 6 inches and foxtail is less than 2 inches tall. Less control of barnyardgrass. Usually not effective on wild oats. Treating early when weeds are small gives best results and reduces risk of crop injury. Marginal crop tolerance. Stunting may occur, especially under dry conditions. Varietal differences have been observed, but not consistently. Minimum carrier is 5 gpa for ground or air. Do not use on flax underseeded to grasses or legumes. Usually applied in combination with MCPA.

DOWPON + MCPA AMINE (DALAPON + MCPA)

1 lb Dowpon-74% wsp + ½ pt MCPA amine-4 lb/gal (¾ + ¼ act)

FOXTAILS, ANNUAL BROADLEAVES

Tank-mix. Apply when flax is 2 to 6 inches tall. Avoid late treatment to reduce injury. Crop height of 2 to 4 inches preferred. Marginal crop tolerance, especially under drought stress. Reduction of Dowpon rate improves crop safety, but usually reduces grasss control. Do not use on flax underseeded to alfalfa or grasses. Refer to Dowpon and MCPA sections above.

BUCTRIL or ME4 BROMINAL (BROMOXYNIL)

1-1½ pt Buctril-2 lb/gal or ½-1 pt ME4 Brominal-4 lb/gal (1/4-3/8 or 1/4-1/2 act)

WILD BUCKWHEAT, SOME ANNUAL BROADLEAVES

Apply when flax is 2 to 8 inches tall and weeds are in 2- to 4-leaf stage. Excellent wild buckwheat and good kochia control. Used in flax primarily for dense infestations of these weeds. Also controls several other annual broadleaves but is weak on wild mustard. Fair to good crop tolerance. Best crop tolerance when flax is small. Do not apply at bud stage or in humid weather when temperature is over 85°F. Use ¼ to 3/8 lb/A acid equiv for most situations. More risk of crop leaf burn with higher rate. Not recommended in combination with other herbicides because of crop injury. Minimum carrier is 10 gpa for ground and 5 gpa for air. Do not use on flax underseeded to alfalfa.

TREFLAN (TRIFLURALIN)

1-2 pt Treflan-4 lb/gal or 10-20 lb Treflan-5% gran (½-1 act)

FOXTAIL

Fall applied preplant incorporated. Not approved for spring application. Granules preferred, especially with heavy residue. Apply granules after September 1, liquids after October 15. Crop residue should be worked to a manageable level before application. Granules may be applied into standing stubble. Incorporate one time within 24 hours. The second incorporation should be in the spring before planting. A tandem disk or a field cultivator (3 to 4 rows of narrow spaced sweeps) set to cut 3 to 4 inches deep may be used. Make second pass at a right angle. Use low rates for light, sandy soil. Rate of 1½ pt or 15 lb gran suggested for most soils. Very consistent weed control. Crop tolerance is fair; however some thinning may occur under poor emergence conditions. Slight reductions seldom affect yield. Seedbed should be firm. Delay seeding until seedbed warms. Seed with a press or hoe drill. Seed less than 1½ inches deep. Minimum carrier is 5 gpa. Consult Treflan label for other precautions.

RAMROD (PROPACHLOR)

4 qt Ramrod-4 lb/gal (4 act)

FOXTAIL

Preemergence. Apply before weeds emerge. Gives very good to excellent control of foxtail. Does not control broadleaves. Rainfall required. Crop tolerance is adequate; some stunting at emergence may be noted under wet, cold conditions. Minimum carrier is 15 gpa. Not labeled for flax underseeded to alfalfa.

AVADEX (DIALLATE)

1½ qt Avadex-4 lb/gal (1½ act)

WILD OATS — Apply either before or after planting. Must be incorporated. Incorporate preplant application immediately into top 2 inches of soil with shallow disk or other suitable equipment. Follow with a harrow or leveling device. A second incorporation improves uniformity, especially under trashy conditions. Application after planting should be incorporated immediately with two harrowings. Delayed or improper incorporation reduces control. Excellent crop tolerance. Good wild oat control. Control is reduced by very cool or dry soil conditions. Minimum carrier is 5 to 10 gpa. Flax may be underseeded to alfalfa.

CARBYNE (BARBAN)

1-1½ pt Carbyne-2 lb/gal (1/4-3/8 act)

WILD OATS — Apply when wild oat is in 2-leaf stage but before 12-leaf stage of crop. Good wild oat control if emergence is uniform. Excellent crop tolerance. Use lower rate under cool, wet conditions. Use 5 to 10 gpa carrier and 45 psi pressure with the boom on ground equipment rotated forward so spray hits weeds at 45° angle. Use 3 to 5 gpa carrier for aerial application. Do not tank-mix with other herbicides. Do not use on flax underseeded to alfalfa. Do not graze treated fields until after crop harvest.

SPECIAL WEED PROBLEMS

VOLUNTEER SUNFLOWERS

BRONATE OR 3+3 BROMINAL — All wheat and barley. Excellent, consistent control. Also very good on kochia and wild buckwheat. Very good crop tolerance. May be applied over wide range of crop growth stages. Good choice when kochia and wild buckwheat are also problems when crop is in the 4-leaf to early boot stage. Good coverage important. Refer to Bronate or 3+3 Brominal section for the specific crop.

BANVEL + MCPA AMINE — Durum, hard red spring wheat, and oats. Very good to excellent, consistent control. Short residual control if topsoil is moist. Also very good on kochia and wild buckwheat. Fair crop tolerance. Better crop tolerance with MCPA than with 2,4-D in the combination. Application limited to a narrow range of crop growth stages. Do not apply late. Good choice for early spraying of dense stands when kochia and wild buckwheat are also problems in crops at the 3- to 4-leaf stage. Refer to Banvel + MCPA section for specific crop.

MCPA AMINE OR ESTER — All wheat, barley, and oats. Good to very good control of small sunflowers. Also controls mustard and lambsquarters but less effective on many other weeds or large sunflowers. Excellent crop tolerance at a wide range of growth stages. The safest treatment for oats. Use 1 pt/A for most situations. Ester form preferred. Good choice when kochia or wild buckwheat is not a problem and treatment must be made before wheat or barley is tillered or at very late crop growth stages. Also good choice for retreating second flush. Refer to MCPA section for specific crop.

2,4-D AMINE OR ESTER — All wheat, barley, and oats. Amine only on oats. Good to very good control. Good crop tolerance when applied at the 5-leaf to early boot stage of wheat or barley or 3- to 4-leaf stage of oats. Use 1/3 lb/A acid equiv for ester and ½ lb/A acid equiv for amine. Ester better on larger sunflowers. Controls several other broadleaves. Good choice for light to moderate infestations in fields where other broadleaves are present and spraying is delayed until crop reaches the proper stage. Refer to 2,4-D section for specific crop.

WILD BUCKWHEAT

TORDON 22K + 2,4-D OR MCPA — Winter wheat, hard red spring wheat, barley, and oats. Refer to Tordon 22K + 2,4-D or MCPA section for specific crop.

BANVEL — All spring wheat and oats. Usually used as a tank-mix with MCPA or 2,4-D to improve control of other weeds. Use MCPA combination on oats. Refer to specific crop section.

BUCTRIL OR ME4 BROMINAL — All wheat, barley, and oats. Usually used in combination with MCPA (Bronate, 3+ 3 Brominal) on all wheat or barley. Refer to specific crop section.

FIELD BINDWEED

2,4-D AMINE OR ESTER — All wheat, barley, and oats. Amine only on oats. Use maximum rate unless willing to accept risk of crop injury with higher rates of ½ lb/A acid equiv for ester or ¾ lb/A acid equiv for amine. Refer to 2,4-D section for specific crop.

CANADA THISTLE

2,4-D AMINE OR ESTER — Same as for field bindweed.

MCPA AMINE OR ESTER — Same as for 2,4-D on field bindweed. Better crop tolerance, especially in oats. Use maximum rates for product.

PENNYCRESS, BLUE MUSTARD

2,4-D ESTER OR AMINE — Winter wheat. Apply in spring when weeds are in rosette stage. Most other weeds will not have emerged. Use ⅓ lb/A acid equiv 2,4-D ester or ½ lb/A acid equiv for amine. Best results in warm weather. Some risk of crop injury. Refer to 2,4-D section for winter wheat.

BRONATE OR 3+3 BROMINAL — Winter wheat. Apply in spring when weeds are in rosette stage. Most other weeds will not have emerged. Best crop tolerance. Best results in warm weather. Refer to Bronate or 3+ 3 Brominal section for winter wheat.

GLEAN — Wheat, barley. Apply early postemergence. Excellent control. Refer to Glean section for wheat.

SMALL GRAIN
(underseeded to legumes)

MCPA AMINE

½ pt MCPA amine-4 lb/gal (¼ act)

LAMBSQUARTERS, MUSTARD, RAGWEED, PIGWEED — Apply when companion crop is in tillered to boot stage and legume seedlings are 2 to 3 inches tall. Emergency treatment for heavy weed growth. Crop and/or weed canopy reduces risk of crop injury. Check product label.

NO-TILL SMALL GRAIN

GLEAN (CHLORSULFURON)

⅓-½ oz Glean-75% df

SOME ANNUAL GRASSES AND BROADLEAVES — Refer to Glean in wheat and barley section for preemergence or postemergence applications made in planted or growing crop. Glean may also be applied for fallow to be planted to winter wheat, hard red spring wheat, and durum.

SPRING OR SUMMER IN CROP BEFORE FALLOW. Apply ⅓ to ½ oz/A in wheat or barley before boot stage. High rates will give some after harvest control into fallow period.

FALL AFTER HARVEST. Apply ⅓ to ½ oz/A early postemergence in fallow before weeds are over 2 inches tall.

SPRING. Apply ⅓ to ½ oz/A early postemergence in fallow before weeds are over 2 inches tall.

NOTE application guidelines, planting restrictions, weed species information for Glean in the wheat section of this publication.

TREFLAN (TRIFLURALIN)

15-20 lb Treflan-5% gran

ANNUAL GRASSES

Summer fallow to be planted to hard red spring, durum wheat, or barley the following spring. Intended to control foxtail during the fallow period and provide residual control in the following crop. Reports indicate very good foxtail control. Also gives fair control of annual broadleaves such as lambsquarters and pigweed. Cultivation or other herbicides required for most broadleaves. Granules may be applied into standing stubble or to soil which has been tilled.

Fallow Application. Use 20 lb/A Treflan-5% gran if applied between April 15 and June 30. Reduce the rate to 15 lb/A if applied July 1 to August 31. Incorporate within 24 hours using a tandem disk, field cultivator, or chisel equipment with large sweeps. The second incorporation can be completed whenever escaping weeds make it necessary. Crop seed should be planted 2 inches deep.

PARAQUAT or GRAMOXONE (PARAQUAT)

1 qt Paraquat or Gramoxone-2 lb/gal

NONSELECTIVE

Paraquat is a nonselective contact herbicide that may be applied before planting until just before crop emerges. No soil residual. Useful for controlling emerged weeds before planting in no-till or reduced tillage systems. May be used before planting barley or wheat. Minimum carrier is 20 gpa for ground or 5 gpa for air. Use 1 pt X-77 speader per 100 gal of solution. Follow handling precautions, as paraquat is highly toxic. Restricted Use pesticide.

ROUNDUP (GLYPHOSATE)
ROUNDUP +BANVEL
ROUNDUP +2,4-D

4-16 fl oz Roundup-3 lb/gal

4-16 fl oz Roundup-3 lb/gal + 4-8 fl oz Banvel-4 lb/gal

4-16 fl oz Roundup-3 lb/gal + 8-16 fl oz 2,4-D amine or ester-4 lb/gal

NONSELECTIVE

Roundup is a nonselective, translocated herbicide with no soil residual. Roundup alone or as a tank-mix with Banvel or 2,4-D is useful to control emerged weeds in no-till or reduced tillage systems. May be applied in stubble after harvest, in fallow, or prior to planting crops in spring. Rates are intended for annual weeds only. Topgrowth of perennials will be controlled with the higher rates listed. Considerably higher rates are required for consistent stand reduction of perennials. Roundup is effective on annual grasses and volunteer grain. Banvel or 2,4-D is for annual broadleaves.

ROUNDUP. Use 4 to 6 oz/A product for seedling wheat or foxtail under 4 inches tall. Rates of 8 to 10 oz/A have been more consistent and are suggested except under ideal conditions with green foxtail or seedling wheat. Use 8 to 16 oz/A for overwintered wheat under 6 inches tall.

ROUNDUP + BANVEL. Banvel improves control of annual broadleaves such as wild buckwheat or kochia. Use Roundup rates listed above with 4 to 8 oz/A Banvel product. Larger broadleaves require higher Banvel rate. Allow 45 days per pint of Banvel before planting wheat, barley, or oats. Corn or sorghum may be planted the spring after a fall application.

ROUNDUP + 2,4-D. The use of 2,4-D improves control of some broadleaves. It is used primarily where carryover precludes the use of Banvel. Use rates of Roundup listed above with 8 to 16 oz/A 2,4-D product (4 lb/gal).

Weeds should be actively growing and not have been cut at harvest. Straw should be removed or have been moved into the stubble by rain. Water quality and quantity appear to be factors. Hard water reduces control, especially at high carrier rates. Apply in 3 to 5 gpa carrier. Lower volumes (1 to 2 gpa) have been satisfactory for aerial application. Add 1 pt surfactant for each 25 gallons of solution. The addition of ammonium sulfate has improved results in several SDSU tests. The suggested concentration is a 2% solution. Add approximately 16 lb of ammonium sulfate per 100 gal of solution. Avoid drift to adjacent crops.

HERBICIDE COST

The table below gives the cost per acre for several herbicide treatments using suggested retail prices. The cost listed is for the low and high rate. Prices vary according to location or quantity and frequently are somewhat less than shown. Consult your local dealer for actual prices.

HERBICIDE	AMT/A	HERBICIDE COST/A
MCPA amine	½-1 pt	$ .88- 1.75
MCPA ester	½-1 pt	1.15- 2.30
2,4-D ester (4lb)	½-1 pt	.60- 1.30
2,4-D amine (4lb)	½-1 pt	.50- 1.00
Banvel	1/8-1/4 pt	.92- 1.85
Buctril	1-2 pt	5.70-11.50
ME4 Brominal	½-1 pt	5.70-11.50
Bronate	1-2 pt	6.30-12.60
3+3 Brominal	⅔-1⅓ pt	6.30-12.60
Tordon+MCPA	1-1½oz + ½-¾ pt	1.60- 2.40
Treflan	1-1½ pt	5.30- 8.00
Ramrod	4 qt	18.00
Stampede	3 pt	7.00
Far-go (liquid)	1-1¼ qt	8.25-12.30
Hoelon	2-3⅓ pt	12.70-21.00
Avenge	2½-4 pt	14.60-23.00
Carbyne	1-1½ pt	7.10-10.50
Dowpon	1 lb	2.00
Glean	1/6-1/2 oz	2.40- 7.25
Avadex	1½ qt	12.30
Roundup	4-16 oz	2.60-10.60
Paraquat	1 qt	12.20